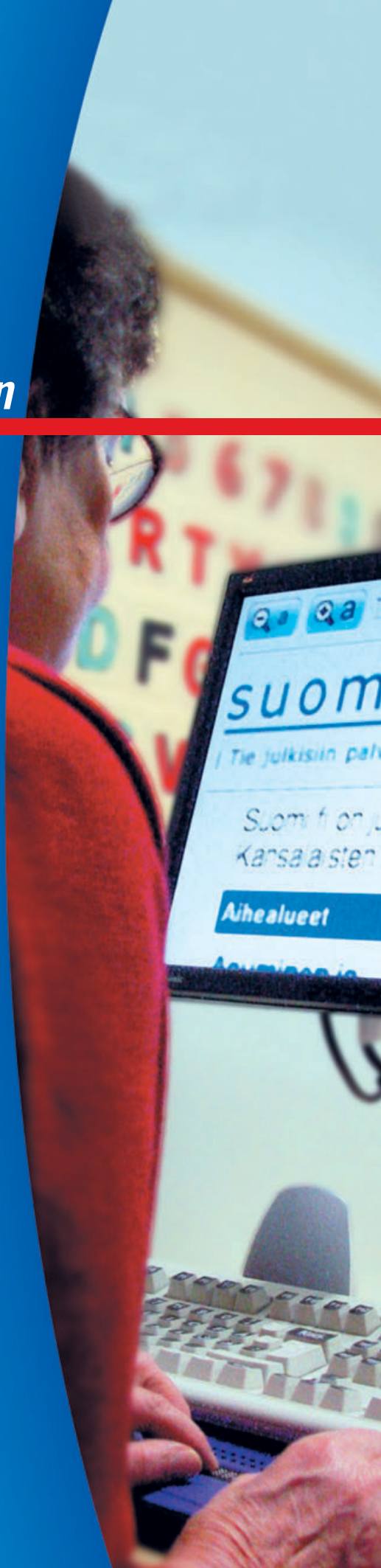


Towards barrier-free communication

An action programme



MINISTRY OF TRANSPORT
AND COMMUNICATIONS FINLAND





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Ministry of Transport and Communications of Finland
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Towards barrier-free communication



Communication services accessible to everyone



The communications and information society policy has a vision of a society, in which technological innovations are used to promote the wellbeing of citizens, equality, democracy and international competitiveness. Accessibility to communication services such as telephone, television, radio and Internet refers to the availability and usability of these media and services to as many people as possible. It is the means to ensure that every citizen has an opportunity to take advantage of communication services in a desired way.



The aims of this action programme are to examine what measures are needed today and in the future to ensure accessible communication services, and to gather information on the current problems in the area. The goal is to raise service providers' and consumers' awareness of the elements and solutions affecting accessibility of communications. Additionally, the programme aims to increase cooperation between significant actors in accessibility work such as the authorities, service providers and end-users.

This action programme brings together the objectives that various administrative sectors and actors developing accessible communication services can promote together.

Helsinki, 26 January 2005

A handwritten signature in blue ink, reading "Leena Luhtanen".

Minister of Transport and Communications
Leena Luhtanen

A handwritten signature in blue ink, reading "Juhani Korpela".

Permanent Secretary
Juhani Korpela



Introduction

Today communications is part of everyone's daily life. New communication services and equipment are ever more rapidly available on the market. For the benefit of balanced social development and equal opportunities it is important to ensure that services are user friendly and easily available, in other words ensure their accessibility.

Accessibility refers to a broad set of measures designed to ensure that all citizens have equal opportunities to work and study and to participate in leisure and other activities in all areas of life. This right to participation shall apply regardless of the person's age, gender, health, ethnic background and any social, mental or physical disabilities.

Accessibility to communication services such as telephone, television, radio and Internet, refers to the availability and usability of these media and services.

Accessibility is particularly important to ensuring that specific groups such as the elderly and disabled can retain their independence. More and more often now, public services in society are also available

The accessibility of structures, functions and services in society helps to make life easier for all citizens.

Accessibility is particularly important to ensuring that specific groups such as the elderly and disabled can retain their independence.

online in electronic format. New forms of electronic communication, new electronic terminals and services such as SMS messages and e-mail, have all opened up new avenues of communication especially for people with sensory disabilities. For example, the Internet has made the information society accessible to people with physical disabilities

in an entirely new way because more and more services are now available online and it is no longer necessary for these people to visit service providers in person.

However, electronic services are not yet universally accessible to all users. The barriers to equal opportunity and participation may be either physical or related to the individual's capacity to receive information. The most common obstacles to electronic communication even in specific groups include age, level of education, financial circumstances, prejudices or a general sense of aversion towards technical devices or technical phenomena. It is important that disabled and elderly people are given special attention in the effort to develop citizens' information society capabilities.

The Finnish Government under Prime Minister Matti Vanhanen is strongly committed to the goal of promoting the development of the information society. In January 2004 the Government adopted a resolution on the national broadband strategy, which covers the period from 2004 to 2007. The aim is that by the end of 2005, all people in Finland shall have access to high-speed, comprehensive and affordable telecommunications connections.

One of the priority areas in the national broadband strategy is the development of people's information society skills and capabilities. In this effort, the strategy points

The strategy points out that it is necessary also to pay attention to the needs of specific groups of end-users such as disabled and older people. As the population continues to age, accessibility will assume much greater importance in the decades to come.

out, it is necessary also to pay attention to the needs of specific groups of end-users such as disabled and older people. As the population continues to age, accessibility will assume much greater importance in the decades to come.

This action programme has been prepared as part of the Government's broadband strategy. Its aim is to raise awareness in Finland of the problems faced by specific groups of end-users and to help remove obstacles to the equality of all citizens as communications service users.



Accessibility action programme

Objectives of the action programme

One of the major goals of this action programme is to increase the prominence and visibility of specific groups of end-users,¹ i.e. disabled and older people in the communications sector. It is important to raise awareness of the problems that disabled and older people face in the use of communications services. Closer cooperation and exchange is needed between the sectoral authorities and representatives of specific groups of end-users.

The development of services should be informed by the Design for All principle, according to which services should be usable as they stand by as large a target group as possible. Where necessary, the service shall be tailored to meet the needs and requirements of those users who cannot take advantage of the basic services in place. Special facilities and services should only be introduced as a last resort.

1) The term “specific group of end-users” derives from the European Parliament and Council Directive (2002/22/EC) on universal service and users’ rights relating to electronic communications networks and services. It is used in the directive to distinguish specific groups of users from other end-users of a communications service.

A major concern for the immediate future is to raise the knowledge level of the elderly population and to make it easier for older people to cross the threshold to using electronic media. Training and guidance must be made available to ageing people on how to use information society services.

It is important that representatives of specific groups of end-users are involved from the earliest stages in the design of dedicated services and terminals. Special attention must be given to the design and planning services that meet the special needs of people with sensory disabilities.

One key objective is to enhance the skills and capabilities of specific groups in the use of communications services. Obstacles to the use of communications services may be physical, or they may have to do with the individual's ability to receive information. A concerted information and training effort is needed to support the development of information society capabilities in specific groups of end-users.

A major concern for the immediate future is to raise the knowledge level of the elderly population and to make it easier for older people to cross the threshold to using electronic media. Training and guidance must be made available to ageing people on how to use information society services.

In a few decades' time the aged population will consist of competent and confident users of information society services and will no longer need the same kind of training and encouragement to use electronic media and services as today. However the demands and expectations of future pensioners will also be higher because they will have become accustomed to using electronic services while working. For these people it will be necessary to have in place a sufficient range of high quality and user friendly public online services. In the design of these services, it is fundamental to take account of the deterioration of vision, hearing and other senses with advancing age.

Specific groups of end-users and their needs and abilities must also be taken into consideration in the design of digital television terminals and operating systems. Services provided via digital television must be made as user friendly as possible.

Specific groups of end-users and their needs and abilities must also be taken into consideration in the design of digital television terminals and operating systems.

According to Design for All principle services should be usable as they stand by as large a target group as possible.



Action programme

Measure	Responsibility	Timetable
The design and planning of accessible online services will be adopted as a general objective in the public sector.	All ministries	Continuing
All public sector tenders for website design will include the requirement of accessible contents.	All ministries	Continuing
SMS emergency services will be opened on 112.	Ministry of the Interior Emergency Response Centre Administration Finnish Communications Regulatory Authority	By 31 Dec 2005
Research will be conducted to establish how new broadband technologies can be used in services targeted to specific groups of end-users.	Ministry of Social Affairs and Health National Research and Development Centre for Welfare and Health Organisations for the disabled Consumer Agency	By 31 Dec 2005
The information society capabilities of specific groups of end-users will be enhanced by means of information and training.	The National Council on Disability Ministry of Education National Research and Development Centre for Welfare and Health Organisations for the disabled Pensioners' organisations	Continuing
The status and position of specific groups as users of communications services will be promoted by means of international cooperation, particularly within the EU.	Ministry of Transport and Communications Finnish Communications Regulatory Authority Ministry of Social Affairs and Health National Research and Development Centre for Welfare and Health Consumer Agency	Continuing
Active involvement in international standardisation work will be encouraged with a view to developing standards that promote the interests of specific groups of end-users.	Finnish Communications Regulatory Authority	Continuing

Measure	Responsibility	Timetable
Measures will be taken to step up the activity of the Human Factors Working Group under the Finnish Communications Regulatory Authority.	Finnish Communications Regulatory Authority	Continuing
A survey will be conducted to determine the range, prices and use of directory services offered to specific groups of end-users.	Ministry of Transport and Communications	By 29 April 2005
Steps will be taken to establish whether it is possible to develop an accessible directory service in CD format.	Ministry of Transport and Communications Organisations for the disabled	By 31 Dec 2005
Teleoperators and companies offering telephone directory or enquiry services will be brought together to discuss and agree on a common set of rules that would activate and encourage companies to provide directory services targeted to specific groups of end-users.	Finnish Communications Regulatory Authority Organisations for the disabled	By 31 May 2005
Equipment manufacturers will be informed of the special needs of specific groups of end-users.	Finnish Communications Regulatory Authority Organisations for the disabled	Continuing
The needs of linguistic and other minorities in relation to digital television will be explored in the Minor project under the Ministry of Transport and Communications ArviD programme.	Ministry of Transport and Communications Organisation for the disabled	By 31 Dec 2005
The research results from the Minor project under the Ministry and Transport and Communications ArviD programme will be promoted.	Ministry of Transport and Communications Organisations for the disabled	By 31 Dec 2005
A working group will be appointed to monitor implementation of the programme.	Ministry of Transport and Communications	By 31 Jan 2005
A report will be prepared on programme implementation.	Ministry of Transport and Communications	By 31 Dec 2005



Main areas of priority in the action programme

Broadband enables fluent communications

Broadband is a dynamic concept: it is a data transfer connection that makes the material and services in information networks easy to use.

Broadband services are a technology of the future that is of great importance with respect to the needs of specific groups of end-users. The broadband markets are still in their infancy. They are currently dominated by services provided through fixed telephone and cable television networks. New technologies for the delivery of broadband services are currently making their way into the market.

Broadband services are a technology of the future that is of great importance with respect to the needs of specific groups of end-users.

Consumer interest in broadband depends crucially on the services that are available via broadband as well as on their pricing. New electronic services increase the choices available to end-users and raise the general standard of services. An increasing range of public online services is key to generating the interest of end-users and indeed to creating new end-user needs. For example, 24-hour online access makes it easier for citizens to use government services.

Broadband services increase the network transmission capacity. One example of the many uses of broadband is in interpretation and videoconferencing in the communication of deaf and hearing impaired people.² Broadband also improves the availability of services. For older and disabled people, for instance, the reception of services online means a reduced need for movement.

2) For statistical purposes the lower limit of broadband transmission speed is often set at 256 kbps. This, however, is not high enough for a successful interpretation service.

Specific groups of end-users must be kept informed by the authorities and service providers about the possibilities offered by broadband. It is essential that representatives of these groups are involved in the development of broadband services. Disabled people should have the option of choosing a broadband connection as an auxiliary device as specified under the Services and Assistance for the Disabled Act.

Digital television extends the selection

Digital television has many advantages over Internet use, for instance. It is a mass distribution channel with which it is possible very rapidly and effectively to reach large numbers of people and which traditionally has been faster and easier to begin using than Internet services. Television is a familiar medium to all population groups, which means the threshold for using it is lower than in the case of other communication media. Television is traditionally followed in real time. It requires no activity on the part of the end-user, which means it has a very low threshold of use.

Digital television makes the information society's services and related phenomena accessible to all end-users. It is an excellent channel for the distribution of these services to disabled people as well. Digital television allows for the provision of a wide range of new services that in analogue broadcasting would have been much more expensive or impossible. With the greater number of

channels available on digital television, it is possible to have dedicated community television broadcasts and services for smaller groups. One example is provided by educational programmes aimed at small target groups. Linguistic minorities can also broadcast their own programmes in their native language. Programmes aimed at minorities often appeal to broader audiences as well.

However, the changeover from analogue to digital television, which is scheduled for 2007, will also bring many challenges. It is important that the needs of different end-user groups are taken into account in the development of digital television services.

The main consideration is to make sure the services are user friendly and easy to use, and to create and provide adequate guidance services.

In general it is important that the digital television interface is user friendly, but the capabilities and limitations of people with visual and hearing impairments must also be taken into account. In view of the needs of people with visual impairments, it is essential that the digital television interface consists not only of graphic elements. For instance, there must be other ways of selecting television channels than only via the graphic interface. Terminal users should be able to select the colours of their choice so as to make the display as clear as possible by highlighting certain colours. For people with



Good quality subtitles do not omit anything that is said in the programme, they do not conceal or cover the person who is speaking or the subtitles of a translated interview, and they do not move too quickly or slowly.

hearing impairments, it is important that there is not only audio but other modes of feedback as well.

It is important that terminals support different kinds of additional services, such as sign language interpretation. Sign language interpretations should be attached to television programmes so that they can be opened by users in movable and resizable pop-up windows.

The number of domestic programmes with subtitles should be increased. The subtitles should not be in graphic format, and they should be detached from the broadcast flow so that they can be accessed later when viewing a recorded broadcast. Where necessary it should be possible to convert the written subtitles into audio subtitling. The size and colour of written subtitles should be

adjustable. It is also necessary to pay attention to the quality of subtitling. Good quality subtitles do not omit anything that is said in the programme, they do not conceal or cover the person who is speaking or the subtitles of a translated interview, and they do not move too quickly or slowly. People with visual impairments would benefit from an audio description service that gives a narrative account of what is happening in the television programme.

Background music or other background noise may make it impossible for people with hearing impairments to follow a television programme. Users should be able to adjust or change the background noise in television programmes in the same way as subtitles.

The Ministry of Transport and Communications has launched a cluster programme that will promote the use of digital television channels, support the development of easy-to-use and innovative services, instigate measures to improve the necessary infrastructure for service production and serve as a coordination network for the various parties involved in the cluster. The aim of the cluster programme is that by 2010, digital television will be an established channel for interactive entertainment, information, civic participation and learning. Furthermore, the programme will seek to set up projects aimed at creating portal services for public administration, producing services related to distance learning, developing health care

With the ever-growing significance of the Internet, it is increasingly important to ensure that all people have barrier-free access to websites.

applications and at producing online local government information and other services.

There are two digital radio networks in Finland which cover almost half of all households. Digital radio channels can be received either on special digital receivers, on the Internet or via digital television. The advantage of digital receivers is their superior sound quality. It is important that the needs and requirements of specific groups with regard to user friendliness and accessibility are properly addressed.

Finland is planning to introduce the fourth digital broadcasting network that would utilise the so-called IPDC technology (Internet Protocol Data Casting). This means transmission of IP form data over the radio and primarily to mobile terminals, such as video programmes or games, and video and sound files.

Attention should be paid to the user friendliness of the service and its applicability for the disabled should be examined.

Accessible websites

With the ever-growing significance of the Internet, it is increasingly important to ensure that all people have barrier-free access to websites. This is particularly so in the case of websites produced and maintained by the public sector, for this guarantees the equality of citizens in the information society.

Several guidelines³ and standards have been prepared to promote and provide direction to barrier-free and accessible content production: these are designed to ensure that contents are accessible to all users regardless of the type of browser, limitations imposed by the environment, the end-user's capacities or disabilities or other individual characteristics. Adherence to these standards is particularly important because the operation of several auxiliary devices is based on existing recommendations in force.

Contents produced in compliance with the standards are easy to update and save production costs. The same contents are suitable for all groups of end-users, browsers and terminals. Accessible websites are usually easier to use, faster, more readable and therefore benefit all users. Apart from accessibility and usability, another factor that

3) See e.g. the recommendation (JHS 129) by the Advisory Committee on Information Management in Public Administration (JUHTA) on the accessibility of public service websites, or the testing sheet jointly developed by organisations for people with visual impairments at www.nkl.fi/suosituksset/testaus. – these documents are available in Finnish.



is continuing to gain in importance with the expansion of the Internet and the growing volume of information is the ease of finding specific contents. Information is easier to find and retrieve when a website that has been produced in compliance with the standards provides search engines with more detailed information on the contents of documents.

Testing is an important part of website production. While there exists an abundance of testing tools to help in this process, accessibility should also be put to the practical test by trying out different browsers and terminals and by recruiting a specialist in accessibility testing to dry-test the website.

The following aspects should be given special attention in website design:

Structure. Important information should be placed at the top of the page. Since people with low vision use magnifying software, it is logical that the most important information is located at the beginning so that they do not have to browse through the whole website using the magnifying function. For users relying on auxiliary devices, the easiest place to find information is in the top left hand corner of the screen. The website structure should be clear and easily intelligible. Users should be able to navigate the website and find the services they require without prior information.

Frames. The number of frames on a page should be limited. It is only in rare instances that frames really are necessary, but they may have an adverse impact on accessibility. Frames should not be used at all on new or redesigned websites.

Use of graphics. Browsers used by people with visual impairments do still not always support the graphics on web pages. The use of unnecessary graphics should therefore be avoided.

Images. All images appearing on web pages should have alternative text applied.

Video and sound clips. If there are video or audio clips on a web page, their contents should also be made available in text form.

Use of colours. People with colour deficient vision may have difficulty seeing certain colour combinations or low-contrast colours. Therefore the contrast should be set at the highest possible, or at least give users the option to change the colours. No essential information should be conveyed by means of colour alone.

The title element. Screen access software used by the blind always reads the title element on each page first; therefore this field should contain text that describes the main content of the website. Each page on the website should have its own title element. Browsers and other programs use the title element in very different ways. It is much

more difficult for search engines to find websites with poor title elements.

Mouse. People with physical disabilities and mobile phone users may not be able, or in the position to, use a mouse for navigation. Websites should therefore be designed to support navigation from the keyboard. In general websites should be accessible without using a mouse. For example, forms should be easy to fill in so that the keyboard is used to move from one field to another.

Adjustable font size. For ease of browsing, people with visual impairments, especially people with low vision must be able to change their browser settings. Where necessary they must also be able to increase the font size on the website.

Browser independence. Many websites are designed from the outset on a graphic basis, which makes navigation with text-based browsers very difficult; this is the type of browser used among others by many visually impaired people. When a new website is created or an existing site redesigned, their operation should be tested using a sample of the most typical browsers and settings.

Technology. Disabled and older people often have only limited IT skills and capabilities, nor do they necessarily have people in their immediate circle who feel comfortable and competent in these areas. It is important that websites can be used with ordinary and safe

browser settings, without the need to install new ones.

Language. The texts appearing on websites should be clearly and well written. Service users cannot be expected to be familiar with loan words from other languages or with the technological jargon.

Format of data presentation. All the text that appears on websites should also be available in HTML format or in special cases in plain text. For example, documents posted on websites should not be available in PDF, Word or Excel format only.

Domain name. Websites should have short and easily remembered addresses or domain names. Addresses consisting of long and obscure chains of letters and numbers make the website much harder to find.

Links. The number of links posted on a website should be kept at a reasonable level. The links should be given as descriptive names as possible. Ideally, they should lead the user direct to the relevant content.

The aim is to ensure that disabled people are treated in the same way as other citizens in their capacity as recipients of emergency services.



The digital television interface must not consist of graphic elements only.

The potential of people with sensory disabilities to take on a pioneering role in information and communication technologies, such as in the development of websites, is not normally recognised. As a rule, all users will benefit from improvements to content accessibility.

Emergency services and positioning

The question of how to organise emergency services for the disabled has received much debate and deliberation in Finland. Since 2002, the Emergency Response Centre Administration has expended considerable effort in preparation of a text message based national emergency system, where the general emergency number 112 can quickly and reliably be reached by SMS message as well. It is expected that the system will be up and running in the end of 2005. The system could prove useful to all people in distress, not just to specific groups of end-users.

Groundwork in preparation of the system is also ongoing at the Finnish Communications Regulatory Authority. Here, representatives of the Authority itself, teleoperators and the Emergency Response Centre Administration have joined forces in an emergency communications working group. In the

Authority's number allocation scheme for SMS services, 112 has long been reserved for general emergency purposes.

For the time being it is only possible to send emergency text messages to regional text message numbers, which vary from one region to another. The current system is not ideal for end-users because it means they have to remember several mobile phone numbers. People who find themselves in distress outside their own home region will therefore have to know the local emergency number in order to send an emergency SMS message.

One key aspect of emergency services is the need to locate the person in distress. The visually impaired often have greater difficulty than other people in identifying their exact location when they are in an unfamiliar environment. The emergency service system should support the visually impaired in this respect as well.

Another medium traditionally used to convey emergency messages is the text telephone, although that is now giving way to mobile phones and SMS messages. However text telephones should be allowed to remain in place for a period of time in order to cater for people who because of their age, level of education or some other reason are reluctant to use new technology.

The aim is to ensure that disabled people are treated in the same way as other citizens in their capacity as recipients of emergency services.

Directory services

Directory services refer in this context to both telephone directory and enquiry services that are used in order to find out a person's telephone number and other contact information. In the case of directory services problems with accessibility have to do with the pricing and usability of these services as well as the presence of barriers to using them.

Access to directory services is particularly problematic for people with visual impairments, who cannot use a printed telephone directory. The pricing of alternative directory services puts the visually impaired in an unequal position vis-à-vis other communications service users. Printed telephone directories are available free of charge for the majority of users, whereas a fee is charged for enquiry services. Furthermore, in some residential institutions calls to service numbers are blocked.

People with hearing impairments cannot take advantage of ordinary directory enquiry services, but they require a separate text-call system. Although the Finnish Slot Machine Association RAY provides funds to support this service for the hearing impaired, users still have to pay a fee.

A directory service ought to be made available that is accessible to disabled users at the same cost as to other users.

Easy-to-use terminals

Terminal characteristics are of paramount importance to the reception of communications services. Mobile phones, televisions, remote controls and other terminals should be as easy to use as possible.

The mobile phone's user interface should be as user friendly as possible. In view of the growing importance of SMS, the ease and simplicity of sending and receiving text messages should be given special attention in the design of mobile phones and user interfaces. The needs and requirements of older users should also be taken into account. Rather than any additional services, what matters most for them is the simplicity of making and receiving phone calls and sending and receiving text messages.

The needs of specific groups of end-users must also be borne in mind when designing digital television terminals and user interfaces. The digital television interface must not consist of graphic elements only.

Instructions for use for terminal devices should be available on request in electronic format as well as in a format that is as accessible as possible to the visually impaired.



Operating environment

Obstacles and barriers to the use of communications services

Hearing impairments

People who have a hearing impairment, who are hard of hearing or who have a speech impediment, are not normally capable of taking advantage of everyday communications services that other citizens take for granted. The hearing impaired cannot use an audio telephone, for instance. The biggest difficulty is with emergency calls: most hearing impaired individuals are unable to make an emergency call without outside help.

It is a critical design consideration that access to information on a website should never be dependent on hearing alone.

SMS messages offer a useful means of communication for people with hearing impairments who can read and write. Many older people, however, either do not know how to or do not want to use text messages. There are also problems with the reliability of text message delivery.

For people who know sign language, videophones are a useful facility. They do not always provide the best possible technical quality, but the situation promises to improve with the proliferation of faster broadband connections.⁴

People with hearing impairments use various auxiliary devices that may be susceptible to interference from electronic media such as mobile phones or computers. An induction loop is used to help reduce the technical disturbance: it makes it easier for hard-of-hearing people to listen to sound and video clips on computers, for example.

4) For statistical purposes the lower limit of broadband transmission speed is often set at 256 kbps. This, however, is not high enough for a successful interpretation service.

It is a critical design consideration that access to information on a website should never be dependent on hearing alone. If there are video or audio clips on a page, the same contents should also be available in text format or with subtitles. Visual indication should always be provided of the presence of information in audio format. This feature benefits not only the hearing impaired, but anyone who is using the terminal without loudspeakers or in a noisy environment, or who for some other reason cannot keep the sound features on.

Visual impairments

People with visual impairments have some problems using emergency services. Anyone who is in distress must usually be able to provide exact location data to the emergency authorities in order to receive help. This, however, may be impossible for the visually impaired if they are alone in an environment with which they are not familiar. People with visual impairments no doubt stand to benefit more than most from the development of positioning features in mobile phones.

The visually impaired use the same Internet browsers as the normally sighted. Some blind people use a text-based Lynx browser. Other auxiliary devices include screen reader programs, Braille display and the Windows magnifying glass. Although this is often overlooked in the design of websites, all the information appearing on web pages could quite easily be modified for accessibility by these devices.

The language used on web pages should be clear and sentences short. Images should be used where they help to make the text easier to understand.

In view of the needs of people with visual impairments, it is crucial that the digital television interface is not based on vision alone. For instance, there must be other ways of selecting television channels than via the graphic interface.

With the proliferation of new electronic services it is important to make sure that the means of identification used by service providers, such as fixed or variable passwords, password generators or electronic signatures are also accessible to disabled users, or that equally reliable alternatives are available. Authentication based on electronic ID cards is a good solution for the visually impaired, provided that the software is designed with a view to accessibility.

Work is currently underway to explore the possibility of downloading and listening to digital audiobooks online. Copyright legislation must be adapted to the reality of developing technology so that it does not hinder online borrowing of audiobooks.



Speech impairments

People with speech impairments are not normally able to take full advantage of everyday communications services. It is often difficult for them to produce and understand spoken and written language. Many aphasic patients also suffer from motor disorders, such as stroke and apraxia, as well as other neuropsychological symptoms such as visual field deficits and visual perceptual disturbances. Persons who have suffered a cerebrovascular incident are not necessarily capable of using an ordinary computer keyboard or mouse, which means they will need assistance to use library display units, for example. They may also experience similar problems with cash dispensers.

Because of their communication problems many speech disabled people have difficulty sending a traditional emergency message. The motor disorders associated with their disability may prevent some speech impaired people from sending an emergency message by SMS.

The Internet is an area where it is essential for speech disabled people to be active. There are large numbers of Internet websites that remain inaccessible to speech disabled people and plain language users, even when they use auxiliary devices. The language used on web pages should be clear and sentences short. Images should be used where they help to make the text easier to understand. The needs of speech impaired people should also be taken into account when designing online forms.

If the contents of a website are based on the principles of plain language throughout, they will be understood by all users.

Questions requiring written answers should be replaced as far as possible with tickable boxes or preset response options.

Many speech disabled people or plain language users may require tailored online services. If the contents of a website are based on the principles of plain language throughout, they will be understood by all users. If it is not possible to have the whole website written in plain language, the recommended option is to attach separate plain language pages.

Furthermore, people with speech impairments should be taken into account in the design of mobile phones.

Views of other disabled groups

Mental retardation may adversely affect the individual's capacity to receive and use communications and electronic services. Mental retardation often involves other disorders and disabilities, such as physical and speech impairments, low vision and hearing as well as epilepsy, which may reduce the individual's capacity to use communications services.

Thoughtful design that takes account of the requirements of accessibility with respect to contents, service structure and language, would benefit all groups who have difficulties with understanding. It is not only older people who have problems of understanding, but also people with mental retardation, people with dyslexia, people with cognitive deficiencies as well as other groups with learning difficulties. Well designed, plain-language web and mobile phone services would facilitate access to information for all these people.

It is difficult for people with physical impairments to reach services. For example, bill payment machines and terminals as well as self-service ticket and booking machines for public transport are too often installed in places that are inaccessible to disabled people. Barriers preventing access to the machine may include heavy doors, stairs or high thresholds; in some cases the machine is too high up or in too narrow a space for wheelchair users to reach.

Many people with physical impairments have problems with their upper extremities. This highlights the importance of the size and light weight of devices. Keyboards and push buttons should be large enough. Keyboard and mouse settings should be adjustable to reduce the chance of misspellings. Programs should be clear and easy to use so that they are accessible to people with limited fine motor control of the upper extremities.

Communication problems of the ageing people

The capacity to receive and absorb new information declines with advancing age. People become less capable of learning and at the same time more dependent on help and assistance from others. Sensory and motor functions decline and cognitive functions slow down. Most visual, hearing and speech impairments develop with increasing age.

Media and information technology skills are increasingly regarded as a basic determinant of people's role and position in society. Ageing individuals may have great difficulty keeping up with this development. Part of the reason for this is that their experiences of media predate the age of computers and it is only during the past ten years that the Internet has become commonplace.

One difficulty for older people may be the lack of motivation. They may feel that electronic communications just isn't for them. Indeed it is important that traditional services remain in place as an alternative to electronic services. The price of personal service should not be prohibitive. The move to online services should be organised in such a way that people's legal rights are not affected and that people who are unable or unwilling to use online services still have the opportunity personally to visit government authorities and other service providers.

Ageing users should also be taken into account in the design of mobile phones. All functions needed to receive calls and text messages should be easy to use.



Background information related to specific groups

People with visual impairments

There is no single, unambiguous definition of visual impairment because people's assessments of their eyesight are necessarily subjective. For this reason there are no exact statistics on the number of visually impaired people in Finland. However, studies suggest that there are at least some 80,000 visually impaired people in Finland. This is 1.55% of the population. It is estimated that up to 70,000 of these people are elderly, and only 10,000 of working age. The number of visually impaired young persons under 18 is estimated at between 1,000 and 1,500.

According to the Finnish Federation of the Visually Impaired, the majority of people with visual impairments have low vision, while the number of blind people is less than 10,000. Even among the blind, the majority have some residual vision. Total blindness is rare in Finland.⁵

Estimates by the Finnish Federation of the Visually Impaired put the annual number of children born with visual impairments at less than one hundred. No accurate figures can be given because most children who are born with visual impairments have multiple disabilities and the visual impairment is not

⁵) The condition accounts for no more than 2.5% of all cases in the register of visual impairments.

always immediately recognised. Visual impairments in children are often severe and the presence of multiple disabilities makes rehabilitation a particularly difficult challenge. The visual impairment register has 40–60 children in each age cohort.

The Federation estimates that each year some 300–400 adults of working age develop a visual impairment. Among the elderly, several thousand lose all or part of their eyesight every year.

People with hearing impairments

Hearing is the most important of all senses for communication. A reduced capacity for communication greatly increases the risk of marginalisation at all ages. Appropriately timed health care and rehabilitation is crucial to supporting hearing impaired people in their day-to-day life, to maintaining their ability to study and work and to helping them retain their independence for as long as possible.

It is estimated that there are some 740,000 people in Finland with hearing impairments of different severity. Some 30,000 of them cannot hear the radio or television even with the help of aids. The number of those who have lost their hearing in adulthood stands at around 3,000. In approximately 100,000 people, hearing loss has been caused by noise. It is anticipated that the number of hearing impaired people will double by 2020 as a result of population ageing. By this time one in four adults will have a hearing impairment.

For the hard of hearing, various technical solutions that transfer, amplify and clarify sound in the environment are of great importance.

The deaf represent a linguistic and cultural group who use Finnish sign language as their first language for purposes of everyday communication, retrieval of information, and studying. Sign language interpretation services allow these people to communicate and use services in spoken language environments.

The deaf use the spoken language of their environment as their second language primarily in written form. Their knowledge of spoken language ranges from complete bilingualism to very low levels of reading and writing skills. Lip reading and vocal skills also vary widely. Speech, audio signals, sound alarms and other forms of sound-based communication are not accessible to the deaf.

In all their activities and in all barrier-free solutions in the environment, the deaf rely on their eyesight; in some situations they may also make use of their sense of touch. The number of deaf who use sign language in Finland is around 5,000.

People with poor hearing or those who have lost their hearing after learning to speak, use either Finnish or Swedish rather than sign language as their native tongue. Various vision based methods have been developed to support or compensate for speech communication: examples include lip reading, subtitling, finger spelling and signed speech. Interpretation services can also be used with these methods.

People with poor hearing usually use a hearing aid. A hearing aid amplifies all sounds, and therefore users may have difficulty deciphering speech against a lot of background noise or music, for example. For the hard of hearing, various technical solutions that transfer, amplify and clarify sound in the environment are of great importance.

People with deaf-blindness may have some residual hearing or vision, but some rely completely on their sense of touch and smell. Their method of communication depends on how much hearing or vision they have left as well as on when they have lost their hearing or vision. Some people with deaf-blindness use Finnish sign language in a tactile form, others use Finnish or Swedish by means of various communication methods based on hearing, vision or touch. The deaf-blind use interpreter services as well.

The estimated number of deaf-blind people in Finland is around 600.



People with speech impairments

A person with a severe speech impediment refers to a hearing person who is unable to cope in everyday communication situations by means of speech. It is difficult for this person to produce and understand speech. A speech impairment is often accompanied by reading and writing difficulties. Many neurological diseases and disorders impact linguistic functions, i.e. speech, understanding speech, reading and writing. The number of people with severe speech impairments in Finland is estimated to be in the range of 0.3–0.5% of the adult population.

A speech impairment and language or communication difficulties are often due to an underlying neurological or some other disease or disorder. The problems may appear at birth or later in life. A severe speech impairment may be associated with cerebral palsy, an intellectual disability, autism, dysphasia, aphasia caused by stroke or brain injury, various neurological disorders such as multiple sclerosis, or with functional limitations or

Dysphasia is a specific difficulty in language development which manifests itself in a poor ability to produce or understand language.

damage of the speech organs. In adults, speech and the use of language after stroke or brain injury may be complicated by aphasia or dysarthria. Cerebrovascular disorders are the third most common public health problem in Finland, with around 14,000 people falling victim each year.

According to estimates by the Stroke and Dysphasia Federation, there are around 20,000 aphasic adults in Finland and some 30,000 children and young people with various degrees of problems understanding and producing speech and written language. Dysphasia is a specific difficulty in language development which manifests itself in a poor ability to produce or understand language. In children, it causes delayed and deviant language and speech development. Dysphasic children are slow to learn vocabulary, sentences, concepts and grammar. Dysphasia has been diagnosed since the 1980s, and the number of diagnoses has been increasing in recent years.

Mutism or a severe communication disorder seriously hampers the development of communication and social skills in people with speech impairments. Interaction and communication with the environment easily remains one-way traffic, increasing the risk that people with communication disorders become withdrawn and marginalised. There are various complementary means of communication and ways of clarifying speech, such as gestures, hand signs, images, Blissymbolics and word cards.

Other disabled groups

Statistics indicate that physical impairments are the most common type of disability in the EU countries. In Finland, it is estimated that people with mobility handicaps account for around 10% of the population. Mobility handicaps include various spinal cord injuries, CP injuries, shortness of stature, polio, multiple sclerosis, various muscular disorders, rheumatoid arthritis and other joint diseases as well as amputations of the upper and lower extremities. A mobility handicap and the use of a mobility aid may restrict the individual's capacity to generate power and reach objects and adversely affect static and dynamic balance. Other possible symptoms include lack of coordination and muscle tone as well as muscle cramp.

Mental retardation may also have a significant restrictive effect on the individual's functional capacity. The disability presents various obstacles to learning and activities of daily living: these may be related, among other things, to social skills, self-control, health and functional learning skills. Mental retardation is often accompanied by other disabilities such as physical and speech impairments, low vision and hearing as well as epilepsy, which may also restrict independence. In people with mental retardation the ageing process may start earlier than in the rest of the population.

It is estimated that there are some 30,000 people with mental retardation in Finland, which is 0.6% of the population. Most of them have mild mental retardation.

The ageing of the population must be taken into account in electronic communications and information society services as well.

Aged people

Official retirement age in Finland is 63–68 years, which often serves as the dividing line for reference to “older” or “elderly” people as well. Today more than 15% of the Finnish population are aged 65 or over. This translates into almost one million people. Within this broad category there are people of very different ages who differ widely in terms of their health and background.

The number of older people is set to increase in the next few years as the babyboom generation reaches retirement age. At the same time the situation is heightened by structural changes following from an increasing life expectancy at birth and a low fertility rate. The number of children and young people is decreasing, the population of working age is shrinking and the elderly population is growing. Furthermore, it is projected that the total population will start to fall in the early 2020s.



Special attention must be given to improving the information society capabilities of people of all ages; to lowering the threshold to using electronic media; and to providing data security and protection.

In the age group over 60, life expectancy has increased by about one year per decade since the 1960s. Experts predict that this same trend will continue at more or less the same rate; it is possible that it may even gather further speed. Long-term projections of the number of very old people have been revised upwards time and again. The number of centenarians in Finland has increased exponentially over the past four decades. In the future more and more people will reach age 85–90, and soon it will be not at all uncommon for people to live beyond 90.

These changes in the population age structure affect the whole of Finnish society in various ways. The ageing of the population has far-reaching economic, social, cultural and political consequences.

The ageing of the population must be taken into account in electronic communications and information society services as well. Population ageing will probably have the effect of reducing physical movement, but at the same time reliance on other, alternative forms of contact will likely increase. In the communications sector it is expected that the changes in the population age structure will lead to increased communications traffic and increased consumption of electronic services. The challenge is to make sure that the communications networks and services in place cover the whole country and that they are genuinely user friendly. Special attention must be given to improving the information society capabilities of people of all ages; to lowering the threshold to using electronic media; and to providing data security and protection.

Ageing itself creates new needs for the use of electronic services. Examples include remote nursing services, emergency services, electronic home care for the elderly, and the use of GPS services for locating dementia patients. Efficient and inexpensive electronic services are key to ensuring the effective provision of welfare society services in the future as well.

EU policy on communications services for disabled people

Electronic communications directives

Adopted in 2002, the EU electronic communications directives⁶ are based on the principle that Member States may impose on service providers in the communications markets no obligations beyond those specified in the directives: these are harmonising directives that allow for no incompatible obligations on a national basis. There are some exceptions to the main rule. One exception concerns the protection of the rights of specific groups of end-users.

6) Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services (*Framework Directive*), Directive 2002/19/EC of the European Parliament and of the Council on access to, and interconnection of, electronic communications networks and associated facilities (*Access Directive*), Directive 2002/20/EC of the European Parliament and of the Council on the authorisation of electronic communications networks and services (*Authorisation Directive*), Directive 2002/22/EC of the European Parliament and of the Council on universal service and users' rights relating to electronic communications networks and services (*Universal Service Directive*) and Decision no. 676/2002/EC on a regulatory framework for radio spectrum policy in the European Community (*Radio Spectrum Decision*). The documents have been published in the Official Journal of the European Communities on 24 April 2002.

Article 7.1 of the European Parliament and Council Directive (2002/22/EC) on universal service and users' rights relating to electronic communications networks and services (henceforth *Universal Service Directive*) says that, where appropriate, Member States shall take specific measures for disabled end-users in order to ensure access to and affordability of publicly available telephone services, including access to emergency services, directory enquiry services and directories, equivalent to that enjoyed by other end-users. According to the second paragraph of the same article, Member States may take specific measures, in the light of national conditions, to ensure that disabled end-users can also take advantage of the choice of undertakings and service providers available to the majority of end-users.

According to Article 8 paragraph 2a of the European Parliament and Council Directive (2002/21/EC) on a common regulatory framework for electronic communications networks and services (henceforth *Framework Directive*), it is important that national regulatory authorities promote competition in the provision of electronic communications services and ensure that users, including disabled users, derive maximum benefit in terms of choice, price and quality. Network operators and terminal equipment manufacturers are encouraged to cooperate in order to facilitate access by disabled users to electronic communications services.



According to article 8 paragraph 4e of the Framework Directive, national regulatory authorities should promote the interests of citizens among other things by addressing the needs of specific social groups, particularly disabled users.

INCOM

Established under article 22 of the Framework Directive with representation from the EU Member States, the Commission and certain interest groups, the Communications Committee (COCOM) decided in February 2003 to appoint a *Subgroup on Inclusive Communication* (INCOM) to address the needs of specific groups of end-users. Involved in this group are representatives of EU Member States, industry, equipment manufacturers, different user groups and organisations for the disabled.

INCOM was charged with drafting a recommendation concerning the needs of these end-user groups in the field of electronic communications. This recommendation was also to take a stance on the meaning and implications of the universal service obligations set out in the Universal Service Directive as seen from the point of view of disabled users. Secondly, the subgroup was also charged with the task of increasing awareness and disseminating information about the barriers that disabled and other specific groups of users face in the use of electronic communications services.

In its report INCOM listed the following key urgent topics with respect to the provision of communications services for people with disabilities:

- 1) access to national emergency services;
- 2) access to telephone services for deaf persons;
- 3) access to digital television and related services;
- 4) access to public pay telephones;
- 5) electronic communications services for deaf-blind people;
- 6) equal access to broadband services for people with disabilities; and
- 7) the use of certain newly allocated radio frequencies to support accessibility services for disabled groups.

INCOM submitted its report to the Communications Committee in October 2003. The committee is continuing to monitor and implement the recommendations submitted.

eEurope 2002 and eEurope 2005: the EU's information society programmes

The action plan eEurope 2002 was launched in 2000 as part of the so-called Lisbon strategy, which is aimed at making the European Union the world's most competitive economy by 2010. eEurope 2002 concentrated on three main priorities: 1) cheaper and faster Internet access and Internet security; 2) investing in people and skills; and 3) stimulating the use of the Internet. These priorities included several concrete measures designed to get all population groups involved in the information society, such as the application of Design for All standards in the design of electronic services, the removal of legislative obstacles and increasing cooperation and exchange of information between Member States.

The new eEurope 2005 action plan was adopted in spring 2002. Its proclaimed objective is to stimulate secure services, applications and content based on a widely available broadband infrastructure. In contrast to the earlier action plan, eEurope 2005 formulates its information society objectives in more general terms, leaving the choice of specific means to the discretion of individual actors. One of the areas where the involvement of all population groups in the information society is considered paramount is in the development of e-government services.

Further details on the eEurope programme are available at http://europa.eu.int/information_society/eeurope/2005/index_en.htm

Details on the eInclusion and eAccessibility components of the eEurope programme are provided at http://europa.eu.int/information_society/policy/accessibility/index_en.htm

Domestic regulation of communications services for disabled people

Section 6 of the Finnish Constitution (731/1999) says that no one shall, without an acceptable reason, be treated differently from other persons on the ground of disability or other reasons that concerns his or her person. The purpose of the Services and Assistance for the Disabled Act (380/87) is to make it easier for the disabled individual to live and participate with others as an equal member of society and to prevent and remove the hindrances and barriers caused by disability. Services for the disabled are designed to help find the individual solutions required by these people and to support their equality. Finnish disabled policy is to try and meet the needs of people with disabilities and to provide the services they require primarily through the general service system. The

One of the new eEurope 2005 areas where the involvement of all population groups in the information society is considered paramount is in the development of e-government services.



The aim of the Finnish disabled policy is to make sure that the needs of people with disabilities are addressed and covered at the municipal level regardless of the disabled individual's economic and social circumstances.

Disabled Act is a secondary law, which means that special services and support are provided only in so far as the services available through the general system are inadequate.

Finnish disabled policy is based on the Nordic welfare model. Its aim is to make sure that the needs of people with disabilities are addressed and covered at the municipal level regardless of the disabled individual's economic and social circumstances. According to the Disabled Act the aim is to make it easier for disabled people to live and participate with others as equal members of society and to prevent and remove the hindrances and barriers caused by disability. Responsibility for the provision of the necessary services and support rests with local governments.

The Communications Market Act (393/2003) has no specific provisions concerning communications services for disabled people.

Domestic standardisation

National standardisation groups under the Finnish Communications Regulatory Authority closely monitor the work of the European Telecommunications Standards Institute (ETSI) and the International Telecommunication Union's standardisation sector (ITU-T). They are also responsible for coordinating Finnish participation in these organisations and for compiling and maintaining standards, recommendations and guidelines for implementation in the telesector.

The Human Factors national standardisation group under the Finnish Communications Regulatory Authority is charged with monitoring the human factors and communications needs of specific groups of end-users, such as ageing individuals and people with disabilities. The group also considers the needs for standardisation in communications networks and services as well as in terminal equipment from the point of view of specific users groups. In doing this it takes account of the requirements of legislation and keeps an eye on ongoing research projects in this field.

The Human Factors standardisation group involves representatives of organisations for the disabled, government authorities, teleoperators and terminal equipment manufacturers.

Nordic cooperation in the disabled sector

Nordic cooperation around communications services for the disabled is primarily organised through the Nordic Forum for Telecommunication and Disability (NFTH). The forum was established in 1987 under the Nordic Council of Ministers.

The purpose of the NFTH is to deal with relevant areas of telecommunication that concern disabled people as well as the integration of disabled people into the information society in the Nordic countries. The NFTH issues recommendations and guidelines concerning existing as well as future problems in the information society. All the Nordic countries are represented in the NFTH, with one representative appointed by a national telecommunications company, one by the Ministry of Social Affairs and Health and one by the national telecommunications authority, which in the Finnish case is the Finnish Communications Regulatory Authority. The NFTH arranges meetings on average twice a year.

EC action programme

The EC Ministerial Meeting in May 2003 took the decision to launch preparations for a new, modern action programme for disabled policy which has a recommendatory nature. The aim is to gain approval for the programme in spring 2005. It is grounded in the premise that access to communications services is a key precondition for social participation by people with disabilities. Technological development is rapidly changing the way that people interact

with one another. It is important that everyone can benefit from the development of communication technology. Public organisations in particular should make sure that the information they produce is also readily accessible to people with disabilities. They should set an example to private organisations.

The objective of the programme is that all Member States of the European Council shall take action that will guarantee disabled people access to information on the same terms as other members of society. This should be promoted by adopting new advanced technologies and in this way by supporting the independence of disabled people.

In order to achieve these goals, Member States are encouraged to provide public information in formats that are accessible to people with disabilities, to step up IT training and education for disabled people and in general to promote communication that is accessible to disabled people. The European Council should also take these goals into consideration in its own communication.



Accessibility projects

Design for All

Design for All refers to design processes and strategies that aim to promote the usability and accessibility of environments, products and services for all users.

Coordinated by the National Research and Development Centre for Welfare and Health (STAKES), the Finnish Design for All network currently involves 24 research institutes, universities and user organisations. The Finnish DfA network is part of the European Design for All eAccessibility network EdeAN.

The network's most recent project was called *Dissemination Activity Supporting Design for All (DASDA)*. These efforts are ongoing among others in the context of the eInclusion project.

Further information

<http://www.stakes.fi/dfa-suomi/>

New assistive technology for independent living (ITSE project)

The STAKES-coordinated *ITSE project* aims to promote independent living among older and disabled people by improving the skills and competencies of social and health care staff in the use of new assistive technology.

This goal is pursued by

- developing expertise, new service models and practices;
- disseminating information about new technologies and related services to staff members and service users;
- providing training to staff working in social and health care services; and
- creating regional and national networks of expertise.

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Disabled People in the Labour Market of the Information Society (VATI project)

The VATI project is aimed at promoting the equality of disabled people in the labour market and to remove obstacles to their employment. To this end it has set up a network of cooperation between the various actors in this field. It also conducts research and provides information regarding the impacts of the ongoing development of the information society upon the labour market and employment, with special reference to the position of disabled people.

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Online dictionary of Finnish Sign Language (Suvi)

An online dictionary of Finnish Sign Language (*Suvi*) has been opened at <http://suvi.viittomat.net/>. The service provides sign entries for everyday communication. It can also be accessed via pocket PCs and smartphones.

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Interpreter Services for People with Hearing or Speech Impairments (VETURI project)

The VETURI project is designed to assist and support local authorities in providing interpreter services and in improving service standards so that people living in different parts of the country and with different disabilities have equal access to these services. In addition the project will support the development of regional specialist networks: the purpose is to promote the systematic networking of expertise and to create forums of cooperation that facilitate dialogue, contribute to better practices of cooperation and support new contracting arrangements. Key actors in the project include service providers, producers, end-users as well as researchers and teachers. The project also has a dedicated forum of electronic cooperation (*Tieto VEP*).

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Virtuopo project

Funded by the European Social Fund and the National Board of Education, *the Virtuopo project* is aimed at creating for sign language users a virtual resource and service centre for study and career guidance. The project will provide online training, assemble new information, compile and produce materials in sign language on different occupations, job seeking, career and study options, and provide personal vocational counselling. Ultimately the aim is to establish a permanent virtual centre for study and career counselling accessible to all sign language users.

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Virtual school in sign language

The virtual school in sign language is a Finnish Deaf Association project that is supported by the Bovallius Foundation. The main development focus in the programme is on online teaching. The purpose is to produce and develop digital study materials in sign language and to test these materials in online teaching. The virtual school is involved in various national and international projects, including the EU-funded DEAFVOC project which involves offering study plans to people who use sign language as their first language and Finnish as their second language. Study plans and online materials are also produced for the vocational training of deaf people.

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Etu project

Launched by the Finnish Deaf Association and funded by the Finnish Slot Machine Association, *the Etu project* was concerned with the development of remote sign language interpretation via network connections.

A key advantage of remote interpretation is that as interpreters spend less time travelling, they can serve a larger number of customers. Remote interpretation via video phones provides a cost-effective way for local governments to meet their service obligations. The Etu project was committed to promoting the adoption of remote interpretation in Finland. It prepared a recommendation for the organisation of remote interpretation, produced a model for a national remote interpretation network, and drafted ethical and operational guidelines for remote interpretation that can be used in the training of interpreters and service users.

It also identified the minimum requirements for hardware and connection speeds used in remote sign language interpretation and established the compatibility of different technical solutions.

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Ageing, health and technology

This project aims to generate information on how new technologies and related services can be used to promote health and independent living in older people. A further concern is to gain a clearer understanding of the possibilities and limitations of technology in the care of patients with dementia.

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Papunet

Papunet is an Internet website dedicated to speech impairments and plain language. Its aim is clear and barrier-free communication. The website provides information for people with speech impairments, their families and professionals working in this field. It serves as a channel for information exchange and for the publication of users' own texts and works of art. The website is divided into sections where the pages are available in standard language, plain language, Blissymbolics, and in an image version. There are also separate games pages. Audio support and text versions are available for some of the contents

The website is coordinated by the Finnish Association on Mental Retardation. Funding is provided by the Finnish Slot Machine Association. Organisations involved in production and maintenance of the website include the Stroke and Dysphasia Federation, the Autism and Asperger Association, Föbundet De Utvecklingsstördas Väl fr., the Finnish Association of Societies for Persons with Mental Disabilities, the Finnish Association on Mental Retardation and the Finnish CP Association.

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Plain e-language project

Launched by the Finnish Association of Societies for Persons for Mental Disabilities, *the Plain e-language project* (2003–2006) is aimed at finding and testing solutions that would give all people equal access to networking civil society – including people with disabilities, older people, and others who have difficulties with perception.

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Quality on the Web

The Ministry of Finance project *Quality on the Web* offers tools for developing and assessing the quality of online services. A good public online service is defined by reference to a set of quality criteria that are divided into five main areas, namely use, contents, management, production and benefits. The assessment tool based on this set of criteria can be used to evaluate the quality of the online service and to identify areas in need of development. One way to obtain outside feedback on one's own online service and to compare its standard with other services is to participate in quality competitions.

W3C project

The World Wide Web Consortium (W3C) develops common protocols and technologies for the Internet. The aim is to steer the development of the Internet as a forum of communication, trade and mutual understanding. W3C currently has some 400 member organisations around the world. Most members are based in industrial countries.

The mission of the Finnish W3C office is to raise awareness of W3C recommendations and promote adoption of these recommendations in Internet development and to encourage organisations within this field to join W3C. Concrete W3C activities include communication and publishing, the development of networks of cooperation, the development of online services, the provision of expert services and project cooperation. In practice this cooperation involves working closely with business companies, research and training organisations as well as other organisations in the technical field.

W3C has produced its own guidelines concerning web content accessibility. The guidelines are available at www.w3.org/TR/WAI-WEBCONTENT/.



Interpreter service development project (TUPU 2004–2008)

The aim of this project is to develop interpreter services for the deaf and hard of hearing. The project involves five components: remote interpretation, research on written interpretation, training for the use of interpreter services, extension training for writing interpreters and the ethics of interpretation.

The remote interpretation component is concerned to assess the feasibility of written interpretation via remote connections. The aim is to establish the ideal format of the interpreted text with respect to ease of end-user access. Training for the use of interpreter services aims to provide information on the services available and practical advice and guidance to end-users. The ethics component is concerned to explore the views of different user groups (people who have lost their hearing, the hard of hearing, deaf people, sign language users, the deaf-blind) on good interpretation practices. A manual will be compiled on good practices.

The project is funded by the Finnish Slot Machine Association RAY.

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Distance teaching project for manually coded spoken language (VIPE 2001–2004)

This project aimed to develop distance teaching of manually coded spoken language via videophone. There were distance teaching groups based in different parts of the country, i.e. in Kouvola, Kemi, Imatra and Joensuu. Each group involved people who were hard of hearing, who have become deaf later in life as well as their relatives. Once a week these groups are in contact via videophone with a teacher at the Helsinki headquarters of the Federation of the Hard of Hearing.

As well as providing distance teaching, *the VIPE project* conducted research to determine the amount of teaching received by customers as well as their use of manually coded spoken language in Finland.

Furthermore, the project developed a training programme for manually coded spoken language instructors. Within this programme people with hearing impairments who know the language were taught how to teach it. In addition a medium level exam was for testing skills of manually coded spoken language to complement the existing elementary level exam.

The project was launched in 2001 and ended at the end of 2004. It was funded by the Finnish Slot Machine Association RAY.

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Barrier-free listening environment project (ESKU 2003–2006)

The barrier-free listening environment project under the Finnish Federation of the Hard of Hearing is aimed at identifying the barriers to listening in the environment of older people with hearing impairments and to develop model solutions and accessibility criteria for a good listening environment. In addition, the project will create a national system for monitoring the development of listening conditions for the hard of hearing in public spaces and activities.

The project is funded by the Finnish Slot Machine Association RAY.

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Barrier-free study environment for the hard of hearing (2004–2005)

The aim of this project is to develop a guidance and counselling model for secondary and tertiary level students with hearing difficulties and in this way to facilitate their barrier-free participation in education. The main difficulties experienced by hard of hearing students are related to listening and communication. The needs of students with hearing impairments are not given enough attention in the design of study environments or indeed in the design of tuition and instruction. Project outputs will include a monitoring system, an interactive website, quality criteria for accessible study environments for hard of hearing students, support materials for students and teaching staff and a training model for people planning or beginning their studies.

The project is partly funded through government aid from the Ministry of Education.

Further information

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Minor project (2004–2005)

Funded through the Ministry of Transport and Communications *ArviD digital television cluster programme*, the Minor project consists of a preliminary survey (2004) and a pilot phase based on key results from this survey (2005). The preliminary survey aimed to identify the specific needs and hopes of different linguistic and other minorities in relation to digital television and to look at how these could be met in terms of technology and financing. The follow-up project will pilot the key results of the preliminary survey, including television broadcasts and subtitling services for linguistic minorities.

Further information

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Home services via digital television

The Ministry of Transport and Communications launched a preliminary survey on home services provided to older and disabled people via digital television. The purpose in this project was to study the different uses of the digital television network for service provision to older and disabled customers and as a source of social contacts. Among the services offered were home nursing, library, post, entertainment and friendship services as well as interactive games and educational channels.

The survey was completed by the end of 2004. On the basis of the results a funding application will be submitted to the State Provincial Office of Oulu and the Ministry of Social Affairs and Health. The relevant services will then be implemented during 2005–2008.

Further information

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